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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,813	02/09/2004	Shlomo Ovadia	42P18636	9229

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EXAMINER

LE, CANH

ART UNIT	PAPER NUMBER
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2139

MAIL DATE	DELIVERY MODE
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09/06/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/774,813

Applicant(s)

OVADIA ET AL.

Examiner

Canh Le

Art Unit

2139

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-27 is/are pending in the application.
- 4a) Of the above claim(s) 1-18, 28-38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19-27 is/are rejected.
- 7) ☒ Claim(s) 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02/09/2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 08/06/2007.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to the application filed on 08/06/2007.

Claims 1-18 are withdrawn by the applicant.

Claims 28-38 are cancelled by the applicant.

Claims 19-27 are pending and have been examined.

Election/Restrictions

Applicant's election with traverse of Species 2 in the reply on 08/06/2007 is acknowledged.

Claims 1-18 are withdrawn and claims 28-38 are withdrawn and cancelled by the applicant from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species 1 and species 3. Election was made with traverse in the reply filed on August 6, 2007. This is not found persuasive because each of the various disclosed species details a mutual exclusive characteristic of:

Species 1: A method for distributing keys/security data, encrypting data with selected key, sending data a long a virtual lightpath, and decrypting data with decryption key at a destination node.

Species 2: A machine-readable medium to provide instruction, which includes generating a control burst, embedding information in the control burst, and sending data burst to destination edge node.

Species 3: A system comprising a processor, an encryption component, optical interface, and a storage device.

These above individual species act as evidenced by the representation of each various species with a different or set of figures.

A search for one of these mutually exclusive characteristics is not coextensive with a search for the other mutually exclusive characteristics and therefore search for all mutually exclusive characteristics could not be done without serious burden. The requirement is still deemed proper and is therefore made FINAL.

Information Disclosure Statement

The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Cite No. 129 CN1384618. There is no translation for this reference.

Claim Objections

Claim 21 is objected to because of the following informalities: Claim 21 recites "The control burst to and edge node". It should be "The control burst to an edge node". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 19 and 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 19 recites "embedding information in the control burst" where its meaning is unclear. This ambiguity renders claim 19 indefinite. For exam purpose, The Examiner interprets "embedding" as "storing".

Claim 27 recites the limitation "including the decryption key" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 19-27 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. A machine-readable medium includes "other form of propagated signals (e.g., carrier waves, infrared signal, digital signal, etc.)" in the specification (See paragraph [0161]) and signal is, per se, non-statutory.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Chunming Qiao**, Optical Networking Solutions for next-generation Internet networks, "Label Optical Burst Switching for IP-over-WDM Integration", IEEE Communication Magazine, September 2000, pg.104-114 in view of **Chang et al.** (US Patent 6,160,651)

As per claim 19:

Qiao teaches a machine-readable medium to provide instructions, which when executed by a processor in a source edge node of an optical switched (OS) network cause the source edge node to perform operations including:

generating a control burst, the control burst containing information to reserve network resources to form a virtual lightpath between the source edge node and the destination edge node during a scheduled timeslot, the virtual lightpath including at least one lightpath segment [fig. 1b; pg. 105, Col. 1, 2nd paragraph; "In addition, by sending a control packet carrying routing information on a separate control wavelength (channel) and using an offset time (i.e. a lead time) before the transmission of the corresponding burst or data, FDL requirements can be eliminated as illustrated in Fig. 1b"; a control packet is equivalent to control

Art Unit: 2139

burst. A wavelength is equivalent to lightpath. Burst or Data is equivalent to data burst]

embedding information in the control burst identifying one or more data bursts to be sent from the edge node to the destination edge node will be encrypted [fig. 1b; pg. 105, Col. 1, 2nd paragraph; “In addition, by sending a control packet carrying routing information on a separate control wavelength (channel) and using an offset time (i.e. a lead time) before the transmission of the corresponding burst or data, FDL requirements can be eliminated as illustrated in Fig. 1b”; a control packet is equivalent to control burst. A wavelength is equivalent to lightpath. Burst or Data is equivalent to data burst. Control packet processing setup/bandwidth reservation (see fig 1b)];

sending the control burst to a first hop along the virtual lightpath, the first hop comprising one of a switching node or the destination edge node [pg. 107; Col. 1; 4th paragraph; “As shown in Fig. 2a, S sends out a control packet (i.e. control burst) to reserve bandwidth at each hop which is followed by a burst after an offset time T”; pg. 106, Col. 1, 6th paragraph; “ In burst switching, a burst will cut through intermediate node (or switches) without being buffered, whereas in packet switching, a packet is stored and forwarded at each intermediate node (resulting in increased nodal complexity”]; and

sending said one or more data bursts containing the data to the first hop along the virtual lightpath during the scheduled timeslot [fig. 1b; pg. 105, Col. 1, 2nd paragraph; “In addition, by sending a control packet carrying routing information

Art Unit: 2139

on a separate control wavelength (channel) and using an offset time (i.e. a lead time) before the transmission of the corresponding burst or data, FDL requirements can be eliminated as illustrated in Fig. 1b"; a control packet is equivalent to control burst. A wavelength is equivalent to lightpath. Burst or Data is equivalent to data burst. Control packet processing setup/bandwidth reservation (see fig 1b)].

Qiao does not teach:

one or more data bursts containing the data that are encrypted.

However, Chang teaches a data be encrypted **[Col. 2, lines 32-38, "The chaotic optical encryption technique uses what is called "chaotic systems" as the optical encryption method. These are single wavelength chaotic synchronous fiber lasing systems that use amplitude or frequency modulation to introduce a "chaotic state" in the network. The information transmitted through the network is encoded onto chaos at the transmitter side and decoded at the receiver side"]**.

Therefore, it would have been obvious to the person of ordinary skill in the art at the time the invention was made to modify the step of Qiao of the invention by including the step of Chang because it would to provide chaotic optical source and receiver are nearly identical, so that the two chaotic behaviors can synchronize **[Change, Col. 2, lines 51-52]**.

Art Unit: 2139

Claims 20-21 and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Chunming Qiao**, Optical Networking Solutions for next-generation Internet networks, "Label Optical Burst Switching for IP-over-WDM Integration", IEEE Communication Magazine, September 2000, pg.104-114 and **Chang et al.** (US Patent 6,160,651) in view of **Townsend et al.** (US Patent 5,850,441).

As per claim 20:

Qiao and Chang do not teach a machine-readable medium wherein execution of the instructions further perform the operation of sending an encryption key to each of a plurality of edge nodes.

However, Townsend teaches a machine-readable medium wherein execution of the instructions further perform the operation of sending an encryption key to each of a plurality of edge nodes in the OS network [Col. 8, lines 56-59, "**The use of a multiple-access network and the establishing of different keys at different receivers on the network is described in further detail in the above cited International application file this day**"].

Therefore, it would have been obvious to the person of ordinary skill in the art at the time the invention was made to modify the step of Qiao and Chang of the invention by including the step of Townsend because it would to provide a fresh key may be transmitted periodically, to maintain security [Townsend, Col. 8, lines 54-55].

As per claim 21:

Qiao and Chang teach the machine-readable wherein execution of the instructions performs the operation of sending the encryption key to an edge node by:

generating a control burst containing security data including the encryption key or data from which the encryption key can be derived as described as claim 20 above.

Qiao and Chang do not explicitly teach sending the control burst to a first hop along a virtual lightpath coupling the edge node sending the control burst to an edge node receiving the control burst, the first hop comprising one of the edge node receiving the control burst or a switching node.

However, Townsen teaches sending the control burst to a first hop along a virtual lightpath coupling the edge node sending the control burst to an edge node receiving the control burst, the first hop comprising one of the edge node receiving the control burst or a switching node [fig. 2, box 22 and 23]. Motivation is the same as claim 20.

As per claim 25:

Townsend teaches the machine-readable medium wherein an encryption key is sent to an edge node via a communication channel that is external from the OS network [Col. 5, lines 58-59; "The quantum key distribution channel is arranged to operate independently of other transmission channels which use the network to carry either the encrypted data or standard (non-encrypted) signals"]. Motivation is the same as claim 20.

As per claim 26:

Townsend teaches the machine-readable medium wherein execution of the instructions performs further operations including:

generating an encryption key, the encryption key to be used to encrypt the data [Col. 5, lines 58-59; “The quantum key distribution channel is arranged to operate independently of other transmission channels which use the network to carry either the encrypted data or standard (non-encrypted) signals”; Col. 8, lines]; and

generating a decryption key corresponding to the encryption key [Col. 5, lines 58-59; “The quantum key distribution channel is arranged to operate independently of other transmission channels which use the network to carry either the encrypted data or standard (non-encrypted) signals”; Col. 1, lines 43-44; “ as a key for encryption/decryption of subsequence data transmission between the two users of the channel”]. Motivation is the same as claim 20.

Claims 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Chunming Qiao**, Optical Networking Solutions for next-generation Internet networks, “Label Optical Burst Switching for IP-over-WDM Integration”, IEEE Communication Magazine, September 2000, pg.104-114, **Chang et al.** (US Patent 6,160,651) and **Townsend et al.** (US Patent 5,850,441) in view of **Stringer et al.** (US 2003/0196087 A1).

As per claim 22:

Qiao, Chang, and Townsend do not teach the machine-readable medium wherein the security data include an digital certificate.

However, Stringer teaches the machine-readable medium wherein the security data include an digital certificate. **[par. [0021], lines 8-14; “Finally, it will be clear to one skilled in the art that as the document server recognizes entities to trust based on their keys, rather than who signed their digital certificates, and that arbitrary certificates, such as self-signed certificates (i.e., where the party to which the key pair belongs acts as its own certificate authority), or even unsigned public keys in isolation, may alternatively be used”].**

Therefore, it would have been obvious to the person of ordinary skill in the art at the time the invention was made to modify the step of Qiao, Chang, and Townsend of the invention by including the step of Stringer because it would allow a party to which the key pair belongs acts as its own certificate authority **[Stringer, par. [0021], lines 12-13]**.

As per claim 23:

Claim 23 is rejected with the same reason in claim 22 as described above.

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Chunming Qiao**, Optical Networking Solutions for next-generation Internet networks, “Label Optical Burst Switching for IP-over-WDM Integration”, IEEE Communication Magazine,

September 2000, pg.104-114, **Chang et al.** (US Patent 6,160,651), and **Townsend et al.** (US Patent 5,850,441) in view of **McMillan et al.** (US 2004/0039925 A1).

As per claim 24:

Qiao, Chang, and Townsend do not teach a machine-readable medium wherein the security data include one of information identifying an encryption algorithm used to encrypt the data or executable code that may be used to decrypt the certificate.

However, McMillan teaches a machine-readable medium wherein the security data include one of information identifying an encryption algorithm used to encrypt the data or executable code that may be used to decrypt the certificate [fig. 8A; par. [0027]; “The message 600 additionally includes a signature 606 generated by the user. To generate the signature 606, the user generates a message digest, or hash, 608 using a standard algorithm such as, for example, the Secure Hashing algorithm SHA-1, using the header 602 and any data 604 as input to the algorithm”].

Therefore, it would have been obvious to apply a known technique to a known device ready for improvement to yield predictable results by using the same algorithm at a receiver end.

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Chunming Qiao**, Optical Networking Solutions for next-generation Internet networks, “Label Optical Burst Switching for IP-over-WDM Integration”, IEEE Communication Magazine,

Art Unit: 2139

September 2000, pg.104-114 and **Chang et al.** (US Patent 6,160,651) in view of **Stringer et al.** (US 2003/0196087 A1).

As per claim 27:

Qiao and Chang do not teach the machine-readable medium of claim 19, wherein execution of the instructions performs further operations including: “generating security data including the decryption key and identifying the decryption key as a public key, the security data comprising data from which an digital certificate may be issued; and sending the security data to a certificate authority”.

However, Stringer teaches:

generating security data including the decryption key and identifying the decryption key as a public key, the security data comprising data from which an digital certificate may be issued [par. [0018]; “The operating environment 100 also includes a public key infrastructure (PKI). In the PKI, typically a certificate authority 118 or a trusted third party is used to sign digital certificates 120, 132, and 134 issued to the document server 102, user A of the device 106, and user B of the device 108, respectively. The public key infrastructure permits two parties to dynamically establish secure communications with each other without ever having a prior relationship through the use of a digital certificate”]; and

sending the security data to a certificate authority [par. [0018]; par. [0021], lines 1-8].

Therefore, it would have been obvious to the person of ordinary skill in the art at the time the invention was made to modify the step of Qiao and Chang of the invention each public key is included as part of a digital certificate that is held by each part (e.g., the first user, the second user, or the document server) holding the private key associated with that certificates **[Stringer, par. [0008]]**.

Conclusion

The prior arts made of record and not relied upon are considered pertinent to applicant's disclosure.

US 771,461 A to Matyas, Stephen M.;

US 75,648 A to Townsend, Paul David;

US 2005/0138352 A1 to Gauvreau et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Canh Le whose telephone number is 571-270-1380. The examiner can normally be reached on Monday to Friday 7:30AM to 5:00PM other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on 571-272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2139

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Canh Le
August 28 2007


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